

**Before the  
Federal Communications Commission  
Washington, D.C. 20005**

In the Matter of	)	
	)	
Implementation of Section 304 of the	)	CS Docket No. 97-80
Telecommunications Act of 1996	)	
	)	
Commercial Availability of Navigation Devices	)	
Compatibility Between Cable Systems and	)	
Consumer Electronics Equipment	)	PP Docket No. 00-67

**COMMENTS OF SILICON IMAGE, INC. ON FURTHER  
NOTICE OF PROPOSED RULEMAKING**

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**COMMENTS OF SILICON IMAGE, INC ON THE SECOND REPORT AND ORDER  
AND SECOND FURTHER NOTICE OF RULEMAKING**

**I. INTRODUCTION**

Silicon Image, Inc. ("Silicon Image") respectfully submits these Comments concerning the Commission's Further Notice of Proposed Rulemaking in the above captioned proceeding.<sup>1</sup> Because the issues raised by the Commission in the Plug & Play Order are very similar to the issues raised in the Broadcast Flag Order,<sup>2</sup> Silicon Image is filing comparable comments in the Broadcast Flag proceeding. Silicon Image's comments respond to comments made by Genesis and others concerning the Commission's questions on standards and procedures to be employed in approving new technologies, the appropriate entity for making approval determinations and whether a unified regime should be employed for the approval of new technologies.

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<sup>1</sup> Second Report and Order and Second Further Notice of Proposed Rulemaking in CS Docket No.97-80 and PP Docket No. 00-67, *Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices and Compatibility Between Cable Systems and Consumer Electronics Equipment*, Adopted October 9, 2003 ("Plug & Play Order").

<sup>2</sup> First Report and Order in MB Docket 02-230, *Digital Broadcast Content Protection*, 68 FR 67599, Adopted November 4, 2003 ("Broadcast Flag Order").

Silicon Image, founded in 1995, designs, develops and markets multi-gigabit semiconductor and system solutions for a variety of communications applications demanding high-bandwidth capability. Silicon Image is publicly traded, employs approximately 250 people (the majority of which are engineers and technical personnel) and is located in Sunnyvale, California. Silicon Image actively participated in the development of the Digital Visual Interface ("DVI") and High-Definition Multimedia Interface ("HDMI") specifications, has intellectual property involved in both specifications, and develops semiconductor solutions implementing both specifications. Silicon Image will be directly affected by the outcome of this proceeding.

Silicon Image believes the Commission should rely on private industry to develop specifications, standards and procedures for the approval of new technologies. Moreover, Silicon Image believes the Commission constitutes the agency best situated to approve the efforts of private industry groups. Finally, Silicon Image believes the Commission should not unify the approval systems in the Plug & Play and Broadcast Flag dockets.

**II. THE COMMISSION SHOULD CONTINUE TO RELY ON PRIVATE INDUSTRY GROUPS TO DEVELOP SPECIFICATIONS, STANDARDS AND PROCEDURES FOR THE APPROVAL OF NEW TECHNOLOGIES.**

The Commission should continue to rely on the private sector to develop the specifications, standards and procedures for the approval of new technologies, subject to appropriate review by the Commission. The Commission's current policy for the licensing of new technologies provides sufficient guidance while at the same time provides needed flexibility to assure that the Commission only adopts technologies that are widely available in the marketplace. Private industry and the marketplace are the most efficient and most knowledgeable vehicles to determine fair and viable licensing terms appropriate for any specific technology. If the Commission imposes licensing criteria on private industry, it risks stifling

private innovation. In the context of the present docket, the existing licensing terms for the DVI and HDMI specifications are consistent with the Commission's patent policies.

**A. The Commission's Current Licensing Policy Provides Appropriate Yet Flexible Guidance for the Commission's Approval of New Technologies.**

The Commission's current licensing policy provides sufficient degree of freedom for private industry to develop new technologies yet maintains the oversight function of the Commission, thereby assuring that the Commission only adopts technologies that are widely available in the marketplace. In addition, the Commission's current policy does not prohibit the Commission from adopting multiple or competing technologies, nor does it prohibit the Commission from investigating complaints associated with the implementation of new technology.

The Commission's reasonable and non-discriminatory policy encourages private industry to develop new technologies with the expectation that such technology can be licensed in a manner so as not to limit its availability, while at the same time acknowledging the need to provide an economic reward for the innovator(s). Entities, such as Silicon Image, invest significant resources in the design and development of technologies. The Commission's policy should permit innovators of new technologies to develop licensing terms that provide a return on the innovators' investment. At the same time, innovators have a natural incentive to license their technologies on fair and reasonable terms to assure that the marketplace adopts their technology. With those competing interests in mind, the Commission's current policy of requiring licensing terms that are both reasonable and nondiscriminatory provides an optimal balance of interests.

The Commission's role is to adopt technologies that are already widely available in the marketplace. Almost by definition, technologies will not become widely available unless they

are available to be licensed on reasonable and non-discriminatory terms. This places an inherent restraint on the licensor since overly demanding licensing terms will naturally limit the demand for their technology. Therefore, the current Commission policy wisely facilitates the Commission's role as approver and adopter of widely-available technologies without imposing specific, preemptive conditions on the process. For example, through the use of reasonable and non-discriminatory licensing terms, a technology innovator such as Silicon Image may secure wide distribution of a new technology. Then, when and if the Commission finds that the licensing terms for the approved new technology satisfies its "reasonable and non-discriminatory" standard, such a finding provides assurance that the Commission has approved a technology that is already widely available.

Moreover, the Commission's approval does not end its role in the implementation of the new technology and related licensing terms. The Commission is empowered to receive complaints about the implementation of previously approved licensing terms. The Commission, can act on such complaints, employ its investigatory powers, and require different licensing terms. In short, the Commission's approval of licensing terms does not foreclose future review by the Commission – nor does it foreclose approval of competing technologies should such a competing technology enjoy approval and acceptance, for example, by reason of offering economically more advantageous licensing terms.

**B. The Commission Should Continue to Permit Licensors and the Marketplace Freedom to Determine Appropriate Licensing Terms for Particular Technologies.**

The Commission should continue to rely on private industry groups to develop specifications, standards and procedures for adopting new technologies. The current Commission protocol capitalizes on market efficiencies by preserving the freedom of technology

developers and the marketplace to determine the licensing terms that are most appropriate for a particular technology or development. While the Commission constitutes the appropriate entity for approval of licensing technology based standards and/or specifications; industry participants are best suited for the development of licensing terms that reward the particular innovation and enable its widespread use. In this manner, the current regime employs the Commission and private industry in a manner best utilizing the skills of each.

Technology developers have an incentive to provide fair and reasonable licensing terms to assure that their technology or specification(s) are widely adopted. Moreover, it is the market, not a regulatory agency, that is the most efficient and knowledgeable mechanism for setting prices and licensing terms for particular technologies. In terms of initially establishing pricing and licensing terms and then responding to changes in the industry, the market is far superior to and more effective than a regulatory agency. Market forces provide the most efficient means of arriving at license terms that appropriately balance relevant industry concerns.

**C. If the Commission Adopts Licensing Standards More Stringent Than the Current Standard, It Will Likely Impede Private Innovation.**

Should the Commission take it upon itself to come up with licensing standards more stringent than the present "reasonable and non-discriminatory" standard, it risks stifling the innovative forces of private industry. Encouraged by marketplace forces, technology developers license new technologies on reasonable and non-discriminatory terms to make the technology widely available to the market. By contrast, licensing standards imposed on the industry by the Commission may result in an unwillingness to share intellectual property and participate in the development of new technology. Such a result runs counter to the Commission's goals, industry's desires, and the public interest.

The present Commission policy permits industry participants to develop licensing terms appropriate for each technology and its unique concerns. Each new technology presents unique issues and challenges for licensors and licensees. Forcing the Commission to develop preemptive standards for each new technology brought before it places an untenable burden on the Commission and one that is manifestly unnecessary given the inherent advantages of the marketplace in this area. The current regime provides an efficient allocation of responsibilities: asking industry to develop licensing standards and requiring the Commission to assess and approve them

**D. The DVI and HDMI Licensing Terms Are Consistent with Commission Policy.**

The Commission properly found the licensing terms for the DVI and HDMI specifications are offered on reasonable and non-discriminatory terms<sup>3</sup> and no reason exists to disturb such a finding. The DVI and HDMI specifications constitute, as the Commission found, widely-available technologies.

The Consumer Electronics Association (“CEA”), consisting of six hundred fifty entities, developed standards based on the DVI specification and developed standards relying on the additional capabilities provided by the HDMI specification. The CEA required early disclosure of all patents (existing and pending) necessary to the specifications and reviewed the licensing terms. The fact that the CEA, an ANSI-accredited institution, reviewed the DVI and HDMI specifications (and associated licensing terms) should allay any concern that the Commission adopted specifications and licensing terms that did not result from a process that satisfies the Commission’s requirements.

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<sup>3</sup> Plug & Play Order at Para. 25.

The widespread availability of the DVI and HDMI technologies bears out the Commission's approval of the specifications (and associated licensing terms). As of January 2004, approximately five hundred digital televisions, set top boxes, and digital videodisc players include a DVI port. Similarly, in the first year of the HDMI licensing program, manufacturers announced or offered over one hundred models incorporating HDMI technology. This evidence suggests the Commission correctly concluded that such technology was widely-available and that licensors of the technology provided their licensees with terms consistent with Commission policy.

Most importantly, and contrary to the suggestions of Genesis, the terms under which the DVI and HDMI technologies are licensed satisfy the Commission's policy – as the Commission found. Although the DVI Adopter's Agreement clearly limits the DVI 1.0 specification to computer displays, Silicon Image has widely licensed the technology underlying DVI for consumer electronics applications. This explains the Commission's finding that the marketplace contains many consumer electronics products employing DVI and HDMI technology. The availability of such technology in personal computers and consumer electronics products demonstrates the reasonability of the DVI and HDMI licensing terms for consumer electronics applications.

The Commission also found correctly that the HDMI licenses are offered on terms consistent with its reasonable and non-discriminatory policy. Genesis, in its comments, incorrectly asserts that certain provisions of the HDMI Adopter's Agreement are unreasonable. Each will be considered in turn.



Non-Ascertain Clause: The non-assertion clause in the HDMI Adopter's Agreement is reasonable and pro-competitive because it protects users of the HDMI technology from an adopter/patent holder attempting to control the technology through threats or filing of lawsuits or attempts to impose unfair licensing terms. For example, a patent holder could obtain a license for necessary claims of HDMI and thus become immune to claims by the promoters or other adopters) and then sue or threaten to sue the HDMI founders and adopters for infringement. The non-assertion clause levels the playing field among licensees of the specifications, protects all parties from suit and preserves the availability of the technology to the public without the threat of lawsuits.

Burden Shifting: By shifting the burden of proof on infringement claims to the licensees, the HDMI Adopter's Agreement reduces the cost of the license and increases the availability of the technology to the public. The cost of participation by HDMI founders and contributors is reduced because they do not have to expend resources to defend the intellectual property. Thus, the HDMI licensing approach on the burden of proof fosters the rapid industry-wide adoption of the technology.

Verification Testing: Requiring verification testing of products is pro-competitive because it encourages licensors to properly use the technology, promote interoperability among devices employing the technology, and does not create an unreasonable burden on the licensees. Silicon Image has no knowledge of any industry participant being denied HDMI testing services and ultimately certification. The HDMI Adopter's Agreement requires self-certification of compliance with the specification to assure that products from different vendors will work together. It also requires initial products to be tested at a lab in order to bear the HDMI logo, a protocol similar to other technologies such as VHS and DVD. Moreover, verification programs

are the universal standard for virtually all new technologies and have enabled the wide adoption of such new technologies. As a recent example, manufacturers of digital videodisc players had to verify their products before bringing them to market. The long and essentially uneventful history of this practice in the industry suggests that verification programs carry important benefits to consumers and to the industry as a whole while imposing no legally cognizable negative effect on adopters or third parties. The Commission does not need to regulate such programs. To the contrary, regulation of such verification programs would only create unwarranted inefficiencies and harm the public interest.

### **III. THE COMMISSION CONSTITUTES THE AGENCY BEST SITUATED TO APPROVE THE EFFORTS OF PRIVATE INDUSTRY GROUPS.**

Silicon Image submits that the Commission possesses unique institutional competence to evaluate the efforts of private industry groups and the experience necessary to assess and approve the relevant technological specifications and licensing terms. Federal law, moreover, has delegated this responsibility to the Commission.

The Commission's experience over the past several years with the technology and other issues central to the DVI and HDMI specifications makes the Commission the most appropriate entity to determine whether approval of new technologies (and the associated standards and licensing terms) is in the public interest. As a matter of judicial notice, over the past half century the Commission has monitored and approved technological changes in a host of media settings, thus rendering it far and away the most appropriate entity in terms of experience, competence, and independence to determine the fairness and reasonableness of the DVI and HDMI specifications at issue here. Finally, the Commission's unquestioned independence ensures that whatever technology standards and terms the market arrives at, that technology must still pass

the scrutiny of neutral and knowledgeable government regulators before it is adopted by the Commission. Congress established the Commission for such a purpose and even, assuming arguendo the proposed delegation to some third party, non-governmental entity was even legally permissible, the Commission should avoid any temptation to do so.

The Commission, of course, is free to seek assistance of other entities as it fulfills its constitutional role. Congress – through §629(a) of the Communications Act – requires the Commission to consult with “appropriate industry standard-setting organizations” to incorporate commercial viability into its regulations. In these very proceedings, the Commission did exactly that. Reliance on private industry groups such as the CEA does not run counter to the Commission’s obligations. To the contrary, the use of such groups’ is a telling indicator that the Commission has satisfied its obligations under federal law in its efforts to and provide regulatory solutions that are in the public interest as well as those of industry’s participants.

#### **IV. THE COMMISSION SHOULD NOT UNIFY THE APPROVAL SYSTEMS IN THE PLUG & PLAY AND BROADCAST FLAG PROCEEDINGS.**

While conceptual similarities exist between the Plug and Play and Broadcast Flag proceedings, unifying the approval systems in them fails to accommodate the differences between the technologies at issue in each proceeding. For example, the technology in the Plug & Play proceeding must protect digital content in a variety of environments while the technology in the Broadcast Flag proceeding only has to protect digital content employed in free television programming. Similarly, in the Plug & Play proceeding, the Commission has examined a series of factors irrelevant to digital television content protection.

These factual differences suggest the Commission is well advised to retain the freedom to adopt different approval systems in each of the proceedings, but institutional reasons exist as

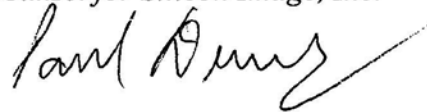
well. Different statutes authorize the Commission's institution of the proceedings. The Commission relied on its §629 authority to institute the Plug & Play proceeding while it employed its ancillary jurisdiction necessary to promote the transition to digital television in the Broadcast Flag proceeding. Thus, while the two proceedings will undoubtedly (and appropriately) influence each other, and developments in one will undoubtedly be relevant to the other, the significant differences between the two proceedings suggest the Commission should keep separate the development of approval systems in each proceeding.

## V. CONCLUSION

As the Commission prepares to promulgate final rules in the Plug & Play and Broadcast Flag proceedings, Silicon Image believes the Commission should: (1) continue to rely on private industry to develop specifications, standards and procedures for the approval of new technologies, (2) retain its role – as the agency best situated to do so – of approving the efforts of private industry groups; and (3) refrain from unifying the approval systems in the Plug and Play and Broadcast Flag dockets.

Respectfully Submitted

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